

## CLAIMS :

1. A video decoding method for the decompression of an input coded bitstream corresponding to an original video sequence that had been divided into successive groups of frames (GOFs) and coded by means of a three-dimensional subband video coding method comprising, in each GOF of said sequence, the following steps :
  - 5 - a temporal filtering step, performed on each successive couple of frames ;
  - a spatial analysis step, performed on said filtered sequence ;
  - an entropy coding step, performed on said analyzed, filtered sequence ;
  - an arithmetic coding step, applied to the coded sequence thus obtained ;said decoding method, applied to the coded bitstream thus delivered for the current GOF,  
10 being further characterized in that it is iterative and comprises as many iterations as the number of couples of frames in each GOF, each iteration itself including, for the reconstruction of each successive couple of frames of each GOF, the sub-steps of :
  - decoding said coded bitstream ;
  - from the decoded bitstream thus obtained, storing only the data related to the  
15 current couple of frames and the appropriate subbands containing some information on at least one frame of said current couple of frames ;
  - from said related data and said appropriate subbands, synthesizing the two frames of said current couple of frames.
- 20 2. A video decoding method for the decompression of an input coded bitstream corresponding to an original video sequence that had been divided into successive groups of frames (GOFs) and coded by means of a three-dimensional subband video coding method comprising the following steps :
  - a motion estimation step, performed on said original sequence ;
  - 25 - a motion compensated temporal filtering step, performed in each GOF of said sequence, on each successive couple of frames ;
  - a spatial analysis step, performed on said filtered sequence ;
  - an entropy coding step, performed on said analyzed, filtered sequence and on motion vectors obtained by means of said motion estimation step ;

- an arithmetic coding step, applied to the coded sequence thus obtained and delivering said coded bitstream ;

said decoding method being further characterized in that it is iterative and comprises as many iterations as the number of couples of frames in each GOF, each iteration itself including, for  
5 the reconstruction of each successive couple of frames of each GOF, the sub-steps of :

- decoding said coded bitstream ;  
- from the decoded bitstream thus obtained, storing only the data related to the current couple of frames and the appropriate subbands containing some information on at least one frame of said current couple of frames ;

10 - from said related data and said appropriate subbands, synthesizing the two frames of said current couple of frames.

3. A video decoding device for the decompression of an input coded bitstream corresponding to an original video sequence that had been divided into successive groups of  
15 frames (GOFs) and coded by means of a three-dimensional subband video coding method comprising, in each GOF of said sequence, the following steps :

- a temporal filtering step, performed on each successive couple of frames ; - a spatial analysis step, performed on said filtered sequence ;

- an entropy coding step, performed on said analyzed, filtered sequence ;

20 - an arithmetic coding step, applied to the coded sequence thus obtained and delivering said coded bitstream ;

said decoding device being further characterized in that it comprises :

(1) means for decoding said coded bitstream ;

25 (2) means for storing, from the decoded bitstream thus obtained, only the data related to the current couple of frames and the appropriate subbands containing some information on at least one frame of said current couple of frames ;

(3) means for synthesizing the two frames of said current couple of frames from said related data and said appropriate subbands ;

30 (4) means for repeating as many times as the number of couples of frames in each GOF the successive steps performed by said decoding, storing and synthesizing means.

4. A video decoding device for the decompression of an input coded bitstream corresponding to an original video sequence that had been divided into successive groups of

frames (GOFs) and coded by means of a 3D subband video coding method comprising the following steps :

- a motion estimation step, performed on said original sequence ;
- a motion compensated temporal filtering step, performed, in each GOF of said sequence, on each successive couple of frames ;
- a spatial analysis step, performed on said filtered sequence ;
- an entropy coding step, performed on said analyzed, filtered sequence and on motion vectors obtained by means of said motion estimation step ;
- an arithmetic coding step, applied to the coded sequence thus obtained and delivering said coded bitstream ;

said decoding device being further characterized in that it comprises :

- (1) means for decoding said coded bitstream that corresponds to the current GOF ;
- (2) means for storing, from the decoded bitstream thus obtained, only the data related to the current couple of frames and the appropriate subbands containing some information on at least one frame of said current couple of frames ;
- (3) means for synthesizing the two frames of said current couple of frames from said related data and said appropriate subbands ;
- (4) means for repeating as many times as the number of couples of frames in each GOF the successive steps performed by said decoding, storing and synthesizing means.

5. A memory medium including a computer readable code for the decompression of an input coded bitstream corresponding to an original video sequence that had been divided into successive groups of frames (GOFs) and coded by means of a three-dimensional subband video coding method comprising the following steps :

- a temporal filtering step —with or without motion compensation— performed, in each GOF of said sequence, on each successive couple of frame ;
  - a spatial analysis step, performed on said filtered sequence ;
  - an entropy coding step, performed on said analyzed, filtered sequence and on motion vectors in case of motion compensation ;
  - an arithmetic coding step, applied to the coded sequence thus obtained and delivering said coded bitstream ;
- said code comprising :
- a code for decoding the said coded bitstream ;

- a code for storing, from the decoded bitstream thus obtained, only the data related to the current couple of frames and the appropriate subbands containing some information on at least one frame of said current couple of frames ;
- a code for synthesizing the two frames of said current couple of frames from said related data and said appropriate subbands ;
- a code for repeating as many times as the number of couples of frames in each GOF the successive steps performed by said decoding, storing and synthesizing codes.

6. An apparatus for the decompression of an input coded bitstream corresponding to an original video sequence that had been divided into successive groups of frames (GOFs) and coded by means of a three-dimensional subband video coding method comprising the following steps :

- a temporal filtering step –with or without motion compensation- performed, in each GOF of said sequence, on each successive couple of frames ;
  - a spatial analysis step, performed on said filtered sequence ;
  - an entropy coding step, performed on said analyzed, filtered sequence and on motion vectors in case of motion compensation ;
  - an arithmetic coding step, applied to the coded sequence thus obtained and delivering said coded bitstream ;
- said apparatus comprising a memory which stores executable code and a processor which executes the code stored in the memory so as to :
- decode said coded bitstream ;
  - store, from the decoded bitstream thus obtained, only the data related to the current couple of frames and the appropriate subbands containing some information on at least one frame of said current couple of frames ;
  - synthesize the two frames of said current couple of frames from said related data and said appropriate subbands ;
  - repeat as many times as the number of couples of frames in each GOF these decoding, storing and synthesizing operations applied to the current couple of frames.